



US006532346B2

(12) **United States Patent**  
Gallivan

(10) Patent No.: **US 6,532,346 B2**  
(45) Date of Patent: **Mar. 11, 2003**

(54) **SYSTEMS AND METHODS FOR PRINTING SHIPPING LABELS FOR RECYCLING PRINTING DEVICE REPLACEABLE COMPONENTS**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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Primary Examiner—Robert Beatty

(21) Appl. No.: **09/921,879**

#### (57) ABSTRACT

(22) Filed: **Aug. 2, 2001**

(65) **Prior Publication Data**

US 2003/0026620 A1 Feb. 6, 2003

(51) Int. Cl.<sup>7</sup> ..... **G03G 15/00**

(52) U.S. Cl. .... **399/12; 399/24**

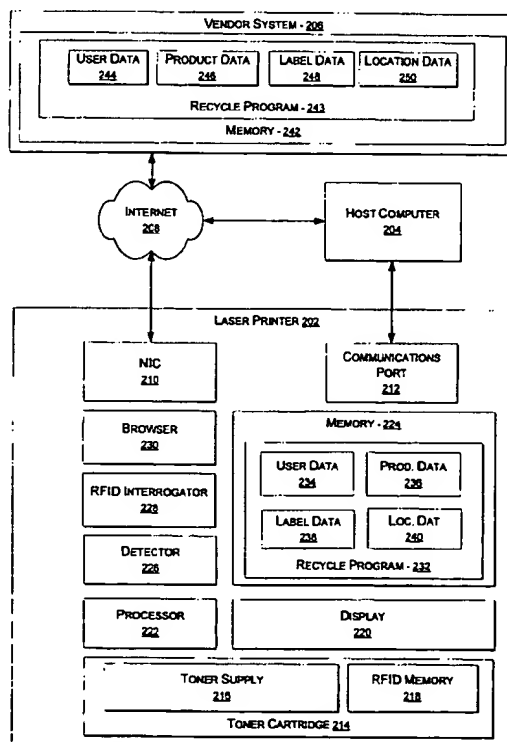
(58) Field of Search ..... **399/11, 12, 24, 399/25, 26, 27, 411; 358/1.14**

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**17 Claims, 3 Drawing Sheets**



US-PAT-NO: 6532346

DOCUMENT-IDENTIFIER: US 6532346 B2

TITLE: Systems and methods for printing shipping labels for  
recycling printing device replaceable components

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Detailed Description Text - DETX (14):

FIG. 2 is a block diagram of an exemplary recycling shipping label printing system 200 constructed in accordance with the invention(s) described herein. The system 200 includes a laser printer 202 that is connected to a host computer 204 and communicates with a vendor system 206 via the Internet 208.

Although the present discussion focuses on a system having a laser printer, it is noted that the recycling shipping label system described herein may be utilized with any type of printing device--such as an inkjet printer, a facsimile machine, a copy machine, etc.--that uses replaceable components. It will be recognized by those skilled in the art that many of the features shown in the laser printer 202 and/or the functions performed by those features may be implemented as software modules, hardware devices and/or a combination thereof

Detailed Description Text - DETX (15):

The laser printer 200 also includes a network interface card 210 and a communications port 212. The network interface card ("NIC") 210 is configured to access and communicate with the vendor system 206 via the Internet 208. The communications port 212 is a parallel port through which the laser printer 202 communicates with the host computer 204, although it could be any port to which the host computer 204 may be connected.

Detailed Description Text - DETX (16):

The laser printer 202 also includes a replaceable toner cartridge 214 that has a toner supply 216 stored therein. The toner cartridge 214 also includes an RFID memory tag 218 integrated therewith, though any type of memory known in

the art for integration with a printing device replaceable component may be used. Although the present discussion will focus on the replacement of the toner cartridge 214, it is noted that the invention described herein is suitable for use related to any replaceable component that is used in the laser printer 214.

Detailed Description Text - DETX (17):

The laser printer 202 further includes a display 220, a processor 222 and memory 224. A detector 226 is included that is configured to detect when a replaceable component in the laser printer 202 is nearing or has reached the end of its functional life cycle. For the present discussion, the detector 226 is a low toner detector 226 that detects when the toner supply 216 of the toner cartridge 214 is nearing a depletion level that indicates that a replacement toner cartridge (not shown) should be obtained to replace the used toner cartridge 214. The detector 226 is shown located in the laser printer 202 itself, although the detector 226 may be integrated into the toner cartridge 214.

Detailed Description Text - DETX (18):

An RFID interrogator 228 is included in the laser printer 202. The RFID interrogator 228 reads from and, in some cases, writes to the RFID memory tag 218 located on the toner cartridge 214. A browser 230 is also included in the laser printer 202 to access a network, such as the Internet 208. It is noted that the browser 230 may comprise hardware, software or a combination of both.

Also, the browser 230 may be configured to access other types of networks, such as local area networks (LAN), wide area networks (WAN), intranets, etc.

Detailed Description Text - DETX (24):

It is also noted that, although the low toner signal is used as the end-of-life event for the replaceable component, i.e., the toner cartridge 214, in the present example, other end-of-life signals for the toner cartridge 214 and/or other replaceable components for the laser printer 202 could be utilized. One or more of these other end-of-life signals may come in a situation wherein the laser printer 202 can no longer print. For example, a fuser may reach an end-of-life condition that prevents the laser printer 202 from printing. In such a case, the implementation will differ slightly from that described herein, in that a new fuser must be installed in the laser printer 202 before the shipping label to return the old fuser can be printed. Those skilled in the art will recognize the necessary changes in the described

process.